

01522


1992/03/28

SUPPLEMENT
REGARDING CHANGES IN SEISMIC EQUIPMENT AND
ADDITIONAL MATTERS
TO THE
AGREEMENT-IN-PRINCIPLE BETWEEN THE
STATE SEISMOLOGICAL BUREAU
OF THE PEOPLES REPUBLIC OF CHINA AND THE UNITED STATES
GEOLOGICAL SURVEY FOR UPGRADES TO THE
CHINA DIGITAL SEISMOGRAPH NETWORK

Both sides, the State Seismological Bureau (SSB) of the People's Republic of China and the United States Geological Survey (USGS), will continue to honor the responsibilities stipulated in the Agreement-in-Principle between the SSB and the USGS for Upgrades to the China Digital Seismograph Network (CDSN), with the following supplement as the addition to the Agreement-in-Principle with the consent of both sides.

1. Both sides agree that the equipment specified in the Agreement-in-Principle to be provided at stations of the CDSN should be replaced by the equipment specified on the list attached to this supplement. The equipment on this list will be provided at each of the 10 stations of the CDSN.
2. Both sides recognize the complex problem of satellite telemetry of CDSN data and both sides agree to work toward a mutually satisfactory solution of this problem.
3. The USGS agrees to provide the SSB, on a more timely basis, data from the worldwide network of digital seismic stations. This data will be provided on magnetic tape within approximately three months of original recording.
4. The USGS agrees to assist the SSB in the development and training of specialists in the application of digital seismic data in research and operations.

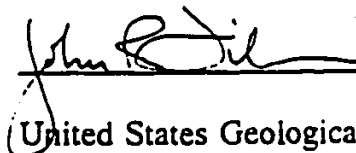
Signed:

 Gu Ping, PRC Side

State Seismological Bureau.

Date: Mar. 28 1992

Signed:

 John R. Dil USA Side
United States Geological Survey.

Date: 3 March 1992

EQUIPMENT AND SOFTWARE TO BE SUPPLIED AT THE CDSN STATIONS & DMC
as part of the
SUPPLEMENT REGARDING CHANGES IN SEISMIC EQUIPMENT AND ADDITIONAL MATTERS
to the
AGREEMENT-IN-PRINCIPLE
between the
STATE SEISMOLOGICAL BUREAU (SSB) OF THE PEOPLE'S REPUBLIC OF CHINA
and the
UNITED STATES GEOLOGICAL SURVEY (USGS),
under Annex I of the Earthquake Studies Protocol, for
UPGRADES TO THE CHINA DIGITAL SEISMOGRAPH NETWORK (CDSN)

This list of equipment and software is for 11 stations (10 operational stations
plus one spare). THE ACTUAL EQUIPMENT & SOFTWARE SUPPLIED WILL DEPEND ON
COST, AVAILABILITY, AND EXPORTABILITY.

QTY	MODEL	DESCRIPTION	MANUFACTURER	UNIT COST	TOTAL COST
SEISMOMETERS:					
Standard seismometers:					
11	VIMB Mod. kit for 1 STS-IV & 2 STS-III	Seismometers	Streckeisen	\$ 4,000	\$ 44,000
1	VIMB Mod. kit for 1 RS-10000	Seismometer	Telebyte-Geotech	6,000	6,000
Optional seismometers:					
(The option to be exercised, if any, will be decided by USGS & SSB)					
Option 1 (LGR): Very Short Period Seismometers and Accelerometers (3 stations only - use existing VSP at other 3 sites):					
3	VSP SEISMOMETERS AND ACCELEROMETERS:		Telebyte-Geotech	\$20,000	\$ 60,000
3	GS-14	Seismometer, Vertical			
6	GS-13	Seismometer, Horizontal			
		Modifications to existing CDSN SP amplifiers to change from 10 Hz to 25 Hz corner frequency			
Option 2 (LR): Low Earth Seismometers and Accelerometers (5 stations only plus 1 spare):					
6	LRV 24	Force balance accelerometer, 2g	Kennametrics	\$ 3,000	\$ 18,000

(Note: Each station processor has 6 channels. Three of these channels
are always used for the STS VIMB seismometers. Only three channels are
available for connection to optional seismometers. Therefore, any one
station can have either the VSP option or the LR option, but not both.)

QTY	MODEL	DESCRIPTION	MANUFACTURER	UNIT COST	TOTAL COST
DATA LOGGING EQUIPMENT & SOFTWARE:					
Data Acquisition (DA) Modules:					
11	CGU0/UX-GC	6-channel Data Acquisition System with with GPS clock and sine wave calibration	Quanterra	\$30,300	\$422,400
11	Module	Application Software	Quanterra, ASI.	(-)	(-)
Data Processing (DP) Modules:					
11	M114/UIS155C3	VME Microprocessor System, 220 VAC, 50 Hz	Motorola	\$17,045	\$190,295
11	MVME945B-1	Enclosure with 220V Power Supply	Motorola		
11	MVME1475A-1	Processor with 8MB DRAM (25 Mhz)	Motorola		
11	MVME712A/B	Transition Module	Motorola		
11	MVME853F-5	Tape and Disk Drives	Motorola		
11		Application Software	Quanterra, ASI.	(-)	(-)
11		System license for OS-9 Operating System & Supporting Software:	Microvate	\$2,000	\$22,000
22	10068MA201.1	Professional OS-9/68020/30 for DA & DP			
11	PCI68NA681.1	Pascal Compiler for DP			
11	ESP68NA681.1	Ethernet Support Package for DP			
DP Accessories:					
11	M2-8300	Quad Serial Board with 6U Backplane	Mizar	\$495	\$5,445
22	M2-6610	DAC Board	Mizar	\$95	\$21,890
22	8300-CB	Cable	Mizar	\$75	\$1,650
11	GP-215	Graphics Terminal, 220V/50Hz power	Citation	\$1,117	\$12,617
11	KX-P1191	Printer, Graphics, with Serial I/O	Panasonic	\$250	\$2,750
11	SNP 024-1-20	Battery Charger, 24V/20A	Exide	\$1,805	\$19,855
22	PHC-1290X	Battery, 12V, 90 Amp-hour	Powers Battery Co.	\$190	\$4,180
33	RS232E	Lightning Protector for RS-232 Port	Gen. Semicond.	\$67	\$2,211
11	RS422E	Lightning Protector for RS-422 Port	Gen. Semicond.	\$78	\$858
Analog Display: Laser Printer:					
11	33481AD	Laser printer, 220V/50Hz Power, with PostScript cartridge, 2 MB memory, parallel interface	Hewlett Packard	\$3,000	\$33,000

UNIT
COST

TOTAL
COST

MANUFACTURER

QTY MODEL DESCRIPTION

DATA LOGGING EQUIPMENT & SOFTWARE (continued):

Dr Accessories (continued):

11	HC-701924	Enclosure (Rack)	Optima	\$ 926	\$ 10,186
11	ROSE-7024	Basic Cabinet			
11	D-6119-LH	Slide Panel (Paint)			
11	20-2119-LH	Solid Metal Door			
44	P-0319	Acrylic Door			
33	P-0819	3.5" Panel			
11	HM-68	8.75" Panel			
11	PO-0712	Leveling Feet (set)			
		Power Output Strip			
		Colors: White #931 (for Bezel and Acrylic Door Frame.			
		Blue #216 (for Top, Base, Sides, Panels, & Door.			

The following telemetry links will be necessary at some stations
(5 optical + spare MUXes, 1 RF) depending on DA-DP separation:

6	UDS-302-G	8-Channel RS-232 Asynch. Optical MIX, "ST" connector, 220V/50Hz power	Opt. Data Sys.	\$ 1,200	\$ 7,200
6	ONS-302-G	8-Channel RS-232 Asynch. Optical MIX, "ST" connector, 24 VDC power	Opt. Data Sys.	\$ 1,400	\$ 9,600
5		Fiber Optic Cable, 1000 foot length, with pulling eye at each end, REMF03 12-06-1-PI/06EX-06EX	(ASL)	\$ 1,800	\$ 9,000
1		RF link for IJJ	Any	\$10,000	\$ 10,000
		Station parts, supplies, tools, & test equipment:			
11		Station spare parts & supplies	(ASL)	\$ 1,500	\$ 75,000
11		Station tools, test equipment	(ASL)	\$ 5,000	\$ 50,000

STATION DATA ANALYSIS EQUIPMENT & SOFTWARE:

(Note: At three stations, the existing Sun 4/650X-8 workstations installed under the GSE program will be used. Seven more Sun workstations plus a spare will be provided for the other seven stations.)

8		Sun Workstation, Model IPC or equivalent, with laser printer and analysis software	Sun	\$21,000	\$168,000
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MANUFACTURER

QTY MODEL DESCRIPTION

DATA MANAGEMENT CENTER (DMC):

The existing CDSN DMC will be maintained until September 30, 1992, at which time maintenance of this equipment will become the responsibility of SSB.

The GSE National Data Center (NDC) equipment will be upgraded with hardware and software necessary to read the DC600HC tape cartridges generated by existing CDSN stations and to read the SEED-format tape cartridges to be generated by the upgraded stations.

1 Labor, software, and equipment necessary (ASL)
to read GSE NDC to process old-type
and new-type CDSN tape cartridges,
and its function as the new CDSN DMC

UNIT
COST

\$25,000

\$ 25,000

TOTAL
COST